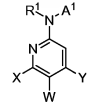
Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

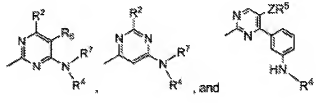
Listing of Claims:

1. (Currently amended) A compound of the formula I:



wherein:

A^1 is a monocyclic ring system selected from:



wherein:

R^1 is, in each instance, independently, hydrogen, C_1-C_6 alkyl, C_1-C_6 alkenyl, C_1-C_6 acyl, aryloxycarbonyl, alkyloxycarbonyl, or trialkylsilyl;

R^2, R^4, R^5, R^8, R^9, R^{10} and R^{11} are, in each instance, independently selected from hydrogen, C_1-C_{10} alkyl, C_1-C_{10} alkyl amino, C_3-C_7 cycloalkyl, aryl, heteroaryl, and heterocyclyl;

R^6 is independently, in each instance, selected from hydrogen, halogen, nitrile, nitro, C_1-C_8 alkyl, C_2-C_8 alkenyl, C_2-C_8 alkynyl, alkylcarbonyl, alkoxycarbonyl, C_3-C_7 cycloalkyl, nitro, OR^8, SR^8, NR^8R^9, $N(O)R^8R^9$, $P(O)(OR^8)(OR^9)$, $(CR^8R^9)_nNR^{10}R^{11}$, COR^8, $(CR^8R^9)_nC(O)R^{10}$, CO_2R^8, $CONR^8R^9$, $C(O)NR^8SO_2R^9$, $NR^8SO_2R^9$, $C(O)NR^8OR^9$, $S(O)_nR^8$, $SO_2NR^8R^9$, $(CR^8R^9)_nP(O)(OR^{10})(OR^{11})$, $(CR^8R^9)_n$-aryl, $(CR^8R^9)_n$-heteroaryl, $-T(CH_2)_mQR^8$, $-C(O)T(CH_2)_mQR^8$, $NR^8C(O)T(CH_2)_mQR^8$, and $-CR^8=CR^9C(O)R^{10}$;

R^7 is independently, in each instance, hydrogen, C_1-C_{10} acyl, alkyloxycarbonyl, aryloxycarbonyl, C_1-C_8 alkyl, or C_2-C_8 alkenyl,

R^{12} is independently, in each instance, hydrogen, C_1-C_{10} acyl, arylalkyl, alkylamino, arylamino, or alkylamino;

R^8 and R^9 may optionally form a carbocyclic group containing 3-7 members preferably 5-6 members, up to four of which are optionally heteroatoms independently selected from oxygen, sulfur, and nitrogen, wherein the carbocyclic group is unsubstituted or substituted with one, two, or

three groups said groups in each instance independently selected from halogen, hydroxy, hydroxyalkyl, nitrile, lower alkyl, lower alkoxy, alkoxycarbonyl, alkylcarbonyl, alkylcarbonylamino, aminoalkyl, trifluoromethyl, N-hydroxyacetamide, trifluoromethylalkyl, amino, or mono or dialkylamino, $(CH_2)_nC(O)NR^{10}R^{11}$, and $O(CH_2)_nC(O)OR^{10}$;

T is, in each instance, independently, O, S, NR^9, $N(O)R^9$, or CR^9R^{10};

Q is, in each instance, independently, O, S, NR^9, $N(O)R^9$, CO_2, $O(CH_2)_n$-heteroaryl, $O(CH_2)_nS(O)_mR^9$, or (CH_2)-heteroaryl;

X and Y are in each instance independently selected from hydrogen, halogen, nitrile, C_1-C_6 alkyl, C_1-C_6 alkylcarbonyl, C_1-C_6 alkoxycarbonyl, nitro, OR^8, SR^8, NR^8R^9, $N(O)R^8R^9$, $P(O)(OR^8)(OR^9)$, $(CR^8R^9)_nNR^{10}R^{11}$, COR^8, $(CR^8R^9)_nC(O)R^{10}$, CO_2R^8, $CONR^8R^9$, $C(O)NR^8SO_2R^9$, $NR^8SO_2R^9$, $C(O)NR^8OR^9$, $S(O)_nR^8$, $SO_2NR^8R^9$, $(CR^8R^9)_nP(O)(OR^{10})(OR^{11})$, $(CR^8R^9)_n$-aryl, $(CR^8R^9)_n$-heteroaryl, -$T(CH_2)_mQR^8$, -$C(O)T(CH_2)_mQR^8$, $NR^8C(O)T(CH_2)_mQR^8$, and -$CR^8{=}CR^9C(O)R^{10}$;

W is selected from hydrogen, halogen, C_1-C_8 alkyl, C_3-C_7 cycloalkyl, C_1-C_8 alkoxy, C_1-C_8 alkoxyalkyl, C_1-C_8 haloalkyl, C_1-C_8 hydroxyalkyl, C_2-C_8 alkenyl, C_2-C_8 alkynyl, nitrile, nitro, OR^8, SR^8, NR^8R^9, $N(O)R^8R^9$, $P(O)(OR^8)(OR^9)$, $(CR^8R^9)_nNR^{10}R^{11}$, COR^8, $(CR^8R^9)_nC(O)R^{10}$, CO_2R^8, $CONR^8R^9$, $C(O)NR^8SO_2R^9$, $NR^8SO_2R^9$, $C(O)NR^8OR^9$, $S(O)_nR^8$, $SO_2NR^8R^9$, $(CR^8R^9)_nP(O)(OR^{10})(OR^{11})$, $(CR^8R^9)_n$-aryl, $(CR^8R^9)_n$-heteroaryl, -$T(CH_2)_mQR^8$, -$C(O)T(CH_2)_mQR^8$, $NR^8C(O)T(CH_2)_mQR^9$, and $-CR^8{=}CR^9C(O)R^{10}$;

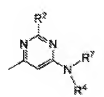
W and one of X or Y may optionally form an aromatic ring containing up to three heteroatoms and optionally substituted by up to 4 groups independently selected from halogen, hydroxy, hydroxyalkyl, lower alkyl, lower alkoxy, alkoxycarbonyl, alkylcarbonyl, alkylcarbonylamino, and aminoalkyl, aminoalkylcarbonyl, trifluoromethyl, trifluoromethylalkyl, trifluoromethylalkylaminoalkyl, amino, mono- or dialkylamino, N-hydroxyacetamido, aryl, heteroaryl, carboxyalkyl, nitrile, $NR^8SO_2R^9$, $C(O)NR^8R^9$, $NR^8C(O)R^9$, $C(O)OR^8$, $C(O)NR^8SO_2R^9$, $(CH_2)_nS(O)_nR^8$, $(CH_2)_n$-heteroaryl, $O(CH_2)_n$-heteroaryl, $(CH_2)_nC(O)NR^8R^9$, $O(CH_2)_nC(O)OR^8$, $(CH_2)_nSO_2NR^8R^9$, and $C(O)R^8$;

m is an interger of from 1-6;

n is an interger of from 0-6; and

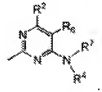
the pharmaceutically acceptable salts thereof;

provided that ~~formula I is not 4,6-pyridinediamine, N,N-bis(4,6-dimethyl-2-pyridinyl)-2-methyl.~~ when A^1 is



R^2 is C_1-C_{10} alkyl and R^7 is hydrogen, then R^4 is not a heteroaryl.

2. (previously presented) A compound of Claim 1, wherein A^1 is



3. (original) A compound of claim 1 wherein R^1 and R^2 are independently, in each instance, hydrogen.

4. (original) A compound according to claim 1 wherein R^4 is alkyl.

5. (original) A compound according to claim 1 wherein R^6 is halogen or COR^8.

6. (original) A compound according to claim 1 wherein W is NR^8R^9.

Claims 7-8. Cancelled.

9. (original) A compound according to claim 1 wherein X and Y are hydrogen.

10. (original) A compound according to claim 1 wherein R^3 is halogen, or C_1-C_8 alkyl.

11. (previously presented) A compound selected from the group consisting of:

4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carbonitrile,

N4-Cyclopentyl-5-nitro-N2-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,

4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carbaldehyde,

4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carboxylic acid ethyl ester,

4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carboxylic acid methyl ester,

[4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-methanol,

1-[4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-ethanone,

3-[4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-but-2-enoic acid ethyl ester,

4-Amino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carbonitrile,

5-Nitro-N2-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,

4-Amino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carbaldehyde,

4-Amino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carboxylic acid ethyl ester,

4-Amino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carboxylic acid methyl ester,

[4-Amino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-methanol,

1-[4-Amino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-ethanone,

3-[4-Amino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-but-2-enoic acid ethyl ester,

4-Cyclopentylamino-2-(5-pyrrolidin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carbonitrile,

N2-[5-(3-Amino-pyrrolidin-1-yl)-pyridin-2-yl]-N4-cyclopentyl-5-nitro-pyrimidine-2,4-diamine,
4-Cyclopentylamino-2-(5-morpholin-4-yl-pyridin-2-ylamino)-pyrimidine-5-carbaldehyde,
4-Cyclopentylamino-2-(3,4,5,6-tetrahydro-2H-[1,3']bipyridinyl-6'-ylamino)-pyrimidine-5-carboxylic acid ethyl ester,
4-Cyclopentylamino-6-methyl-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carboxylic acid methyl ester,
{2-[5-(Bis-methoxymethyl-amino)-pyridin-2-ylamino]-4-cyclopentylamino-pyrimidin-5-yl}-methanol,
1-[4-Benzylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-ethanone,
4-[4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-pent-3-en-2-one,
4-Amino-2-(pyridin-2-ylamino)-pyrimidine-5-carbonitrile,
5-Nitro-N2-pyridin-2-yl-pyrimidine-2,4-diamine,
4-Amino-2-(pyridin-2-ylamino)-pyrimidine-5-carbaldehyde,
4-Amino-2-(pyridin-2-ylamino)-pyrimidine-5-carboxylic acid ethyl ester,
5-Bromo-N2-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,
[4-Amino-2-(5-morpholin-4-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-methanol,
1-[4-Amino-2-(5-morpholin-4-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-ethanone,
[6-(5-Acetyl-4-amino-pyrimidin-2-ylamino)-pyridin-3-yloxy]-acetic acid,
4-Cyclopentylamino-2-(4-hydroxymethyl-5-pyrrolidin-1-yl-pyridin-2-ylamino)-pyrimidine-5-carbonitrile,
N2-[5-(3-Amino-pyrrolidin-1-yl)-6-chloro-pyridin-2-yl]-N4-cyclopentyl-5-nitro-pyrimidine-2,4-diamine,
2-(5-Bromo-pyridin-2-ylamino)-4-cyclopentylamino-pyrimidine-5-carbaldehyde,
4-Cyclopentylamino-2-(1H-pyrrolo[3,2-b]pyridin-5-ylamino)-pyrimidine-5-carboxylic acid ethyl ester,
4-Cyclopentylamino-2-(4,6-dichloro-5-piperazin-1-yl-pyridin-2-ylamino)-6-methyl-pyrimidine-5-carboxylic acid methyl ester,
2-(2-{5-[Bis-(2-methoxy-ethyl)-amino]-pyridin-2-ylamino}-4-cyclopentylamino-pyrimidin-5-yl)-2-methyl-propan-1-ol,
1-[4-Phenylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-ethanone,
4-[4-(3-Hydroxy-cyclopentylamino)-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-pent-3-en-2-one,
4-[5-Cyano-2-(pyridin-2-ylamino)-pyrimidin-4-ylamino]-cyclohexanecarboxylic acid,
2-(4-Amino-5-nitro-pyrimidin-2-ylamino)-isonicotinic acid,
4-Amino-6-methyl-2-(pyridin-2-ylamino)-pyrimidine-5-carbaldehyde,
5-Iodo-N2-pyridin-2-yl-pyrimidine-2,4-diamine,

N-[5-Bromo-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-4-yl]-acrylamide,
N2-(5-Piperazin-1-yl-pyridin-2-yl)-5-prop-1-ynyl-pyrimidine-2,4-diamine,
5-[2-(4-Fluoro-phenyl)-ethyl]-N2-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,
[6-(4-Amino-5-propenyl-pyrimidin-2-ylamino)-pyridin-3-yloxy]-acetic acid,
5-Bromo-N4-cyclopentyl-N2-(5-pyrrolidin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,
N2-[5-(3-Amino-pyrrolidin-1-yl)-6-chloro-pyridin-2-yl]-5-bromo-N4-cyclopentyl-pyrimidine-2,4-diamine,
5-Bromo-N4-cyclopentyl-N2-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,
5-Bromo-N4-cyclopentyl-N2-(4,6-dichloro-5-piperazin-1-yl-pyridin-2-yl)-6-methyl-pyrimidine-2,4-diamine,
N2-[5-[Bis-(2-methoxy-ethyl)-amino]-pyridin-2-yl]-5-bromo-N4-cyclopentyl-pyrimidine-2,4-diamine,
5-Bromo-N4-phenyl-N2-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,
3-[5-Bromo-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-4-ylamino]-cyclopentanol,
N4-Cyclopentyl-5-iodo-N2-(5-pyrrolidin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,
N2-[5-(3-Amino-pyrrolidin-1-yl)-6-chloro-pyridin-2-yl]-N4-cyclopentyl-5-iodo-pyrimidine-2,4-diamine,
N4-Cyclopentyl-5-iodo-N2-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine,
N4-Cyclopentyl-5-iodo-N2-(1H-pyrrolo[3,2-b]pyridin-5-yl)-pyrimidine-2,4-diamine,
4-[6-(5-Bromo-4-cyclopentylamino-pyrimidin-2-ylamino)-pyridin-3-yl]-piperazine-1-carboxylic acid tert-butyl ester,
4-[6-(4-Cyclopentylamino-5-formyl-pyrimidin-2-ylamino)-pyridin-3-yl]-piperazine-1-carboxylic acid tert-butyl ester,
4-[6-(5-Acetyl-4-cyclopentylamino-pyrimidin-2-ylamino)-pyridin-3-yl]-piperazine-1-carboxylic acid tert-butyl ester,
2-[5-(4-tert-Butoxycarbonyl-piperazin-1-yl)-pyridin-2-ylamino]-4-cyclopentylamino-pyrimidine-5-carboxylic acid ethyl ester,
N-Cyclopentyl-N'-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-4,6-diamine,
N-Isopropyl-N'-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-4,6-diamine,
4-[6-(6-Cyclopentylamino-pyrimidin-4-ylamino)-pyridin-3-yl]-piperazine-1-carboxylic acid tert-butyl ester,
N-[5-(3-Amino-pyrrolidin-1-yl)-pyridin-2-yl]-N'-cyclopentyl-pyrimidine-4,6-diamine,
4-{6-[4-Cyclopentylamino-5-(1-methyl-3-oxo-but-1-enyl)-pyrimidin-2-ylamino]-pyridin-3-yl}-piperazine-1-carboxylic acid tert-butyl ester,
1-[4-Cyclopentylamino-2-(5-piperazin-1-yl-pyridin-2-ylamino)-pyrimidin-5-yl]-ethanone,
[4-(5-Ethyl-2-methylamino-pyridin-4-yl)-pyrimidin-2-yl]-(5-morpholin-4-yl-pyridin-2-yl)-amine,

[5-Methoxy-4-(2-methylamino-pyridin-4-yl)-pyrimidin-2-yl]-(5-morpholin-4-yl-pyridin-2-yl)-amine, and

5-Fluoro-N4-isopropyl-N2-(5-piperazin-1-yl-pyridin-2-yl)-pyrimidine-2,4-diamine.

12. (withdrawn) A method of treating a disorder or condition caused by abnormal cell proliferation in a mammal comprising administering to said mammal an amount of a compound according to claim 1 that is effective in treating such condition or disorder.

13. (withdrawn) The method of claim 12 wherein the disorder or condition being treated is selected from the group consisting of vascular smooth muscle proliferation associated with atherosclerosis, postsurgical vascular stenosis and restenosis, and endometriosis.

14. (withdrawn) A method of treating a disorder or condition caused by infections selected from the group consisting of viral infections such as DNA viruses like herpes and RNA viruses like HIV, and fungal infections in a mammal comprising administering to said mammal an amount of a compound according to claim 1 that is effective in treating such condition or disorder.

15. (withdrawn) A method of treating disorders selected from the group consisting of autoimmune diseases selected from the group consisting of psoriasis, inflammation like rheumatoid arthritis, lupus, type 1 diabetes, diabetic nephropathy, multiple sclerosis, glomerulonephritis, organ transplant rejection, including host versus graft disease in a mammal comprising administering to said mammal an amount of a compound according to claim 1 that is effective in treating such condition or disorder.

16. (withdrawn) The method of treating neurodegenerative disorders in a mammal comprising administering to said mammal an amount of a compound according to claim 1 that is effective in treating such condition or disorder.

17. (withdrawn) The method of claim 12 wherein the abnormal cell proliferation is a cancer selected from the group consisting of cancers of the breast, ovary, cervix, prostate, testis, esophagus, stomach, skin, lung, bone, colon, pancreas, thyroid, biliary passages, buccal cavity and pharynx (oral), lip, tongue, mouth, pharynx, small intestine, colon-rectum, large intestine, rectum, brain and central nervous system, glioblastoma, neuroblastoma, keratoacanthoma, epidermoid carcinoma, large cell carcinoma, adenocarcinoma, adenocarcinoma, adenoma, adenocarcinoma, follicular carcinoma, undifferentiated carcinoma, papillary carcinoma, seminoma, melanoma, sarcoma, bladder carcinoma, liver carcinoma , kidney carcinoma, myeloid disorders, lymphoid disorders, Hodgkin's, hairy cells, and leukemia.